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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/697,179	10/27/2000	Nobuaki Mitamura	1344.1046/JDH	4454
21171	7590	12/05/2003	EXAMINER	
STAAS & HALSEY LLP SUITE 700 1201 NEW YORK AVENUE, N.W. WASHINGTON, DC 20005			SUCHECKI, KRISTYNA	
			ART UNIT	PAPER NUMBER
			2882	

DATE MAILED: 12/05/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/697,179

Applicant(s)

MITAMURA ET AL.

Examiner

Krystyna Suchecki

Art Unit

2882

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-4,7 and 14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4,7 and 14 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. §§ 119 and 120**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.  
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_ 6) ☐ Other: \_\_\_\_

**DETAILED ACTION**

***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 1 and 14 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

3. The phrase "greater than" in Claim 1, and the terms "increased" and "greater" in claim 14, are relative terms which render the claim indefinite. The terms "increase" and "greater" are not defined by the claims, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. Several embodiments are given, encompassing negative and positive movement in the temperature dependency of a transmission wavelength characteristic, however, there is no language or numerical value in the claim to describe from what point the dependency is moving, nor if the dependency is increasingly negative, or increasingly positive. Further, the language lends no understanding whether the increasing occurs per degree of temperature change, or if the value is simply larger than some predetermined number nor, if it is some predetermined number, what that number is. Likewise, "greater" is not adequately described so as to give a range or reasonable degree of "greatness" so as to understand the metes and bounds of the invention.

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1, 3-4, 7 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hall (US 5,167,444) in view of Shirasaki ("Temperature Independent..."ECOC Document, referred to as "ECOC" herein). [Claim 14 has been rejected under the interpretation that the parallel members are set to produce a temperature dependency, and that the temperature dependency is greater than zero in either or one of the positive or negative directions.]

6. Regarding Claims 1 and 14, Figure 2 of Hall teaches an airgap type etalon comprising:

- a. a fixing member (36) having at least one flat surface;
- b. a first parallel member (37), which is transparent to incident light and has parallel flat surfaces, one of said parallel flat surfaces thereof being joined to said flat surface of said fixing member;
- c. at least one second parallel member (40), which has parallel flat surfaces in which a distance between said parallel flat surfaces thereof is greater than a distance between said parallel flat surfaces of said first parallel member, one of the flat surfaces of said second parallel member being joined to said flat surface of said fixing member so as to surround the outer periphery of said first parallel member (Column 4, lines 62-65); and
- d. a transparent member (38), which is transparent to incident light into and has opposite flat surfaces, one of said flat surfaces thereof being joined to the other flat

surface of said second parallel member, said other flat surface being opposite to the joined surface to said fixing member;

e. wherein a Fabry-Perot interferometer is formed based on an airgap positioned between the flat surface of said first parallel member and the flat surface of said transparent member facing each other (Column 2 and Figure 2), and wherein a distance between the parallel flat surfaces and the expansion coefficient of each of said first and second parallel members, are set to obtain [an increased] temperature dependency of a transmission wavelength characteristic which is greater than a predetermined value, so that a wavelength temperature dependency of wavelength characteristic of incident light is capable of being compensated (Column 4, lines 31-68).

7. Hall teaches the use of two materials of dissimilar coefficient of thermal expansion in a composite in order to effectuate a low coefficient of thermal expansion (Column 4, lines 31-48).

8. Hall fails to teach a second parallel member having an expansion coefficient different from that of said first parallel member.

9. ECOC teaches that materials of dissimilar coefficients of thermal expansion can be combined for the purpose of forming an etalon with a low coefficient of thermal expansion (ECOC, Section 3). ECOC teaches the selection of one athermal material (athermal glass) and a thermally influenced material (fused silica) (Section 2). By choosing the appropriate materials and thicknesses of the materials, the distance between the parallel flat surfaces of ECOC and the expansion coefficient of each of said first and second parallel members can be set to obtain temperature dependency of a transmission wavelength characteristic capable of compensating temperature dependency of incident light (Sections 2 and 3).

10. Since Hall and ECOC share a similar goal in the art, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use separate materials as taught by ECOC, namely the use of an athermal material, which Hall already teaches, and a thermally influenced material, for the first and second parallel plates in the system of Hall in order to form an etalon with a low coefficient of thermal expansion, wherein the optical distance of said airgap is set to affect the temperature characteristic of the transmission wavelength characteristic. Further, it has been held that the recitation that an element is “capable of” performing a function is not a positive limitation but only requires the ability to so perform. It does not constitute a limitation in any patentable sense. *In re Hutchinson*, 69 USPQ 138.

11. Regarding Claim 3, Hall teaches an airgap etalon above wherein said fixing member is transparent to incident light.

12. Hall fails to teach said fixing member is formed with an antireflection coating on a surface opposite to said flat surface and said transparent member is formed with an antireflection coating on the other flat surface thereof opposite to the joined surface to said second parallel member.

13. ECOC teaches antireflection coatings on the entrance and exit sides of an etalon (ECOC, Figure 3). Antireflection coatings are known in the art to be used for the purpose of preventing backreflections.

14. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include antireflection coatings on the entry and exit surfaces of the etalon of Hall as taught by ECOC for the purpose of preventing backreflections.

15. Regarding Claim 4, Figure 3 of Hall teaches an airgap type etalon wherein reflection augmenting coatings (54 and 56) are formed on said flat surfaces of said first parallel member and said transparent member facing each other, respectively.

16. Regarding Claim 7, Hall as modified by ECOC teach several temperature dependencies of wavelength characteristics, especially in ECOC Section 2. A dependence of 12.5 pm/Degree Centigrade is taught for the use of an athermal glass with fused silica.

17. Hall as modified by ECOC discloses the claimed invention except for a temperature dependency of a transmission wavelength characteristic set to be 25pm/Degree Centigrade or more.

18. Many materials are well known in the art and are widely available through catalog companies. Sapphire is a material that exhibits high mechanical strength, that operates in the extended IR spectral range and that has high chemical resistance.

19. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use sapphire for the material of Hall as modified by ECOC, since it has been held to be within the ordinary skill of a worker in the art to select a known material on the basis of its suitability for the intended use. One would have been motivated to use sapphire for the purpose of using a material that exhibits high mechanical strength, that operates in the extended IR spectral range and that has high chemical resistance to achieve a temperature dependency of a transmission wavelength characteristic set to be 25pm/Degree Centigrade or more. *Sinclair & Carroll Co. v. Interchemical Corp.*, 325 U.S. 327, 65 USPQ 297 (1945)

20. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hall and ECOC in view of Shirasaki (US 5,982,488).

21. Regarding Claim 2, Figure 2 of Hall teaches an airgap etalon above with a fixing member transparent to incident light (36) and a transparent member (38).

22. Hall fails to an etalon system wherein the fixing member has a through-hole and fails to teach a first parallel member formed with an antireflection coating on one flat surface thereof, and the flat surface formed with said antireflection coating is joined to said flat surface of said fixing member around said through-hole, and said transparent member is formed with an antireflection coating on the other flat surface thereof opposite to the joined surface to said second parallel member.

23. Shirasaki ('488) teaches the use of through-holes in etalons, especially where the material with the through-hole is used to the advantage of affecting the temperature dependency of a transmission wavelength characteristic (Figures 5A-6B) such that materials of dissimilar coefficients of thermal expansion are combined to affect the optical distance (Summary). The through-hole is further used for the advantage of allowing unobstructed signal transmission (Columns 9-10 and Figures 5B and 6B)

24. ECOC teaches antireflection coatings on the entrance and exit sides of an etalon (ECOC, Figure 3). Antireflection coatings are known in the art to be used for the purpose of preventing backreflections.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have a fixing member with a through-hole and the first parallel member formed



with an antireflection coating on one flat surface thereof, and the flat surface formed with said antireflection coating is joined to said flat surface of said fixing member around said through-hole, and said transparent member is formed with an antireflection coating on the other flat surface thereof opposite to the joined surface to said second parallel member in the system of Hall as taught by the ECOC and Shirasaki references. The antireflection coatings are used for the purpose of preventing backreflections, and the through-hole is used to the advantage of affecting the temperature dependency of a transmission wavelength characteristic ('488, Figures 5A-6B) such that materials of dissimilar coefficients of thermal expansion are combined to affect the optical distance ('488, Summary) and for allowing unobstructed signal transmission ('488, Columns 9-10 and Figures 5B and 6B).

### ***Response to Arguments***

25. Applicant's arguments filed 11/06/03 have been fully considered but they are not persuasive.

26. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., flexibly addressing temperature dependency, or a wavelength with a "greater" temperature dependency than that of another wavelength) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

27. Applicant's arguments with respect to claim 1 are not persuasive, since Applicant admits that there is a temperature dependency present in the 103 Rejection of Claim 1 (Page 7), yet

Applicant fails to preclude this temperature dependency by providing a “predetermined value” or range to describe “greater than”.

28. Since the remaining claims are otherwise not addressed beyond their dependency on claim 1, the rejections of claims 2-4 and 7 are upheld.

***Conclusion***

29. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Krystyna Suchecki whose telephone number is (703) 305-5424. The examiner can normally be reached on M-F 8-6, with alternating Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner’s supervisor, Edward Glick can be reached on (703) 308-4858. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9318.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-4900.

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DAVID V. BRUCE  
PRIMARY EXAMINER